

WHAT IS CLAIMED IS:

1. A method for manufacturing hot rolled steel sheets comprising the steps of:

passing molten steel through a continuous caster having a mold after
5 having been poured into a ladle and a tundish to manufacture a slab;

cutting the slab to predetermined lengths using a cutter to form a plurality of cut slabs;

heating the cut slabs to a predetermined temperature in a first heating furnace;

10 descaling the cut slabs heated in the first heating furnace;

rolling the slabs in a reduction unit to a predetermined thickness to form a plurality of flat bars;

heating the flat bars to a predetermined temperature in a second heating furnace;

15 coiling the flat bars by a coiling station while the flat bars are maintained in a heated state;

uncoiling the flat bars by an uncoiler; and

rolling the flat bars to a predetermined thickness in a finishing mill.

2. The method of claim 1 wherein the slabs are heated to a temperature
20 1000°C and above by the first heating furnace.

3. The method of claim 2 wherein the slabs are heated to a temperature between 1000 and 1200°C for 5-6 minutes by the first heating furnace.

A 4. The method as in ~~any one of claims 1-3~~ wherein the slabs undergo width rolling before being descaled and after being heated by the first heating
25 furnace.

A 5. The method as in ~~any one of claims 1-3~~ wherein the slabs being rolled in the reduction unit are maintained to a temperature between 800 and 1000°C at an output of the reduction unit.

6. The method of claim 4 wherein the slabs being rolled in the reduction unit are maintained to a temperature between 800 and 1000°C at an output of the reduction unit.
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a 7. The method as in ¹²~~any one of claims 1-3~~ wherein the slabs casted in the continuous caster undergo liquid core reduction.

8. The method of claim ~~4~~ ¹³ wherein the slabs casted in the continuous caster undergo liquid core reduction.

5 9. The method of claim 5 wherein the slabs casted in the continuous caster undergo liquid core reduction.

10. The method of claim 6 wherein the slabs casted in the continuous caster undergo liquid core reduction.

10 11. The method of claim 7 wherein a thickness of the slabs casted in the continuous caster is 100mm, and the slabs undergo liquid core reduction to a thickness of 80mm.

a 12. The method as in ~~any one of claims 8-10~~ wherein a thickness of the slabs casted in the continuous caster is 100mm, and the slabs undergo liquid core reduction to a thickness of 80mm.

13. A method for manufacturing hot rolled steel sheets comprising the steps of:

passing molten steel through a continuous caster having a mold after having been poured into a ladle and a tundish to manufacture a slab;

cutting the slab to predetermined lengths using a first cutter to form a plurality of cut slabs;

20 heating the cut slabs to a predetermined temperature of a first rolling in a first heating furnace;

descaling the cut slabs heated in the first heating furnace;

rolling the slabs in a reduction unit to a predetermined thickness to form a plurality of flat bars;

25 heating the flat bars to a predetermined temperature of a second rolling in a second heating furnace;

coiling the flat bars by a coiling station while the flat bars are maintained in a heated state;

30 uncoiling a plurality of the flat bars by uncoilers;

rolling the flat bars to a predetermined thickness in a finishing mill while

a rear end of a bar steel undergoing rolling is joined to a front end of another bar steel waiting to be rolled such that the bar steels can be continuously rolled; and cutting the flat bars to a predetermined length by a third cutter.

14. The method of claim 13 wherein the slabs are heated to a temperature 1000°C and above by the first heating furnace.

15. The method of claim 14 wherein the slabs are heated to a temperature between 1000 and 1200°C for 5-6 minutes by the first heating furnace.

16. The method as in any one of claims 13-15 wherein the slabs undergo width rolling before being descaled and after being heated by the first heating furnace.

17. The method as in any one of claims 13-15 wherein the slabs being rolled in the reduction unit are maintained to a temperature between 800 and 1000°C at an output of the reduction unit.

18. The method of claim 16 wherein the slabs being rolled in the reduction unit are maintained to a temperature between 800 and 1000°C at an output of the reduction unit.

19. The method as in any one of claims 13-15 wherein the slabs casted in the continuous caster undergo liquid core reduction.

20. The method of claim 16 wherein the slabs casted in the continuous caster undergo liquid core reduction.

21. The method of claim 17 wherein the slabs casted in the continuous caster undergo liquid core reduction.

22. The method of claim 18 wherein the slabs casted in the continuous caster undergo liquid core reduction.

23. The method of claim 19 wherein a thickness of the slabs casted in the continuous caster is 100mm, and the slabs undergo liquid core reduction to a thickness of 80mm.

24. The method as in any one of claims 20-22 wherein a thickness of the slabs casted in the continuous caster is 100mm, and the slabs undergo liquid core reduction to a thickness of 80mm.